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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/517,261

12/07/2004

Shinya Tabata

2004 1823A

8744

513 7590 07/22/2008

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EXAMINER

SAUNDERS JR, JOSEPH

ART UNIT

PAPER NUMBER

2615

MAIL DATE

DELIVERY MODE

07/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/517,261	Applicant(s) TABATA ET AL.	
	Examiner Joseph Saunders	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33-46 and 55-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33-46 and 55-65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the communication filed March 28, 2008.

Claims 33 – 46 and 55 – 65 are currently pending and considered below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 33 – 46 and 55 – 65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The independent claims recite the limitation “an edge member that includes an inner peripheral portion, an arc portion and an outer peripheral portion, said inner peripheral portion of said edge member extending from said outer peripheral portion of said diaphragm...”, since this is the first occurrence of “outer peripheral portion of said diaphragm” the limitation should be corrected to state “an edge member that includes an inner peripheral portion, an arc portion and an outer peripheral portion, said inner peripheral portion of said edge member extending from **an** outer peripheral portion of said diaphragm...”. As a result, the following limitation “wherein said diaphragm includes an outer peripheral portion...” should state “wherein said diaphragm includes **said** outer peripheral portion...”. Finally, the limitation “wherein in a sectional view said inner peripheral portion and said outer peripheral portion are straight,” is indefinite since the limitation does not refer to which inner peripheral portion and outer peripheral are straight. While the claim could be

interpreted that the inner and outer peripheral portion of the diaphragm are straight, the Examiner believes the applicant is trying to differentiate the edge member and therefore, the limitation will be interpreted for examination purposes as referring to the edge member.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 60, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pocock et al. (US 6,889,796 B2), hereinafter Pocock, in view of Ikeda et al. (WO 200235883 A1), hereinafter Ikeda883, (English citations provided from corresponding document US 6,680,430 B2) and Ikeda et al. (WO 200054555 A1), hereinafter Ikeda555, (English citations provided from corresponding document US 6,453,574 B1).

Claims 60, 40, and 41: Pocock discloses a loudspeaker (Figures 1 – 4) comprising: a magnetic circuit (magnetic circuit 12); a frame connected to said magnetic circuit (frame or chassis 10); a voice coil (voice coil 14) that is positioned within a magnetic gap of said magnetic circuit (“magnetic circuit 12 having a gap wherein a voice coil 14 of a cone 16 is received,” Column 2 Line 50 – Column 3 Line 45); a diaphragm (cone 16); an

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edge member (surround 18) that includes an inner peripheral portion (inner flange 22), an arc portion (trough 26) and an outer peripheral portion (outer flange 24), said inner peripheral portion of said edge member extending from said outer peripheral portion of said diaphragm to a radially innermost part of said arc portion (inner flange 22 of surround 18 “can be overmoulded, ultrasonically welded thermally bonded or glued to it [the cone material]”) and said outer peripheral portion of said edge member extending from said frame to a radially outermost part of said arc portion (outer flange 24 of surround 18 “enables the outer margin of the sound [surround] to be secured between the frame ring 20 and a baffle as known per se”); and wherein said diaphragm includes an outer peripheral portion that is bonded to said frame via said edge member (“The basal edge of the cone terminates in a surround or suspension 18 the outer edge of which is fixed to a mounting ring 20 of the frame.”), and an inner peripheral portion that is bonded to said voice coil (“voice coil 14 of a cone”), wherein in a sectional view said inner peripheral portion and said outer peripheral portion are straight (inner flange 22 and outer flange 24, Figures 3 and 4), wherein said edge member is a separate member relative to said diaphragm and is bonded thereto (inner flange 22 of surround 18 “can be overmoulded, ultrasonically welded thermally bonded or glued to it [the cone material]”), and wherein a thickness of a sectional shape of said inner peripheral portion of said edge member is thinner than a thickness of a sectional shape of said outer peripheral portion of said edge member (“The material of the surround is approximately 0.2 mm thick, and the radial width of the flexible parts of the surround (ie. Excluding the

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relatively thick outer flange 24) is approximately 100 times the material thickness,”

Column 2 Line 50 – Column 3 Line 45 and Figures 3 and 4).

Pocock does not disclose wherein said edge member comprises a foamed layer, the foamed layer being made of a foamed resin that includes both an independent foam and a continuous foam, and wherein said radially innermost part of said arc portion has a higher density than said radially outermost part of said arc portion. Since Pocock is concerned with the shape of the edge Pocock does not disclose other important features, i.e. material properties, that must be taken into consideration when designing the edge of a speaker. Therefore, one of ordinary skill in the art at the time of the invention would be inclined to look elsewhere for teachings of a speaker edge with exemplary characteristics to use in the speaker of Pocock.

Ikeda883 discloses a speaker edge (Column 3 – 4, species 1 – 9) that is a separate member relative to said diaphragm and bonded thereto (second species). Ikeda883 further discloses that the edge comprises a foamed layer wherein said foamed layer is made of a foamed resin (first species) including both independent and continuous foam (third species), and also discloses wherein said edge includes skin layers on said foamed layer (eight species). “An expansion ratio of the foamed resin differs between said inner peripheral portion of said edge and said outer peripheral portion of said edge,” is a limitation regarding the method of forming a speaker edge and is not relevant to the issue of patentability of the speaker itself. Therefore, although this limitation is only given weight as to the final product, the limitation is disclosed by Ikeda883 in the sixth species where “precise control of the foaming ratio” gives rise to

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the change in density of the ninth species, thereby realizing a loudspeaker resulting in an edge wherein a density of said foamed resin at said inner peripheral portion of said edge at a thin portion is higher than a density of said foamed resin at an outer peripheral portion of said edge, also disclosed by Ikeda883 (thin portions have higher density than any other thick portions, “affording smooth and even transmission of vibration”, ninth species).

Ikeda555 also discloses a speaker edge that is a separate member relative to said diaphragm and bonded thereto (Column 4 Lines 10 – 20). Ikeda555 further discloses that the edge is made of a foamed resin (Column 2 Lines 50 – 65) including both independent and continuous foam (“both closed and open cells,” Column 3 Lines 14 – 16) and “characterized in that the skin layer of the surface is formed integrally with an inside foamed layer without any clear boundary surface lying between them,” Column 3 Lines 17 – 23. “An expansion ratio of the foamed resin differs between said inner peripheral portion of said edge and said outer peripheral portion of said edge,” is a limitation regarding the method of forming a speaker edge and is not relevant to the issue of patentability of the speaker itself. Therefore, this limitation is only given weight as to the final product which is a loudspeaker resulting in an edge wherein density of said inner peripheral portion of said edge at a thin portion is higher than a density of said outer peripheral portion of said edge at a thick portion to suppress a strength at said inner peripheral portion, also disclosed by Ikeda555 (thin portions have higher density than any other thick portions, so that the strength of the thin portions is enhanced, Column 3 Lines 24 – 26 and Column 6 Lines 53 – 55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock using the method of making a speaker edge disclosed by Ikeda883 and further given the teachings of Ikeda555, to make the radially innermost part of said arc (see Figures 3 and 4 of Pocock and Figure 1 of Ikeda555) or “thin base portions of a **bent portion**” higher in density than that of radially outermost part of said arc portion or thicker base portion of a bent portion, since the edge of Ikeda883 and Ikeda555 has many advantages over conventional speaker edges including the aforementioned “affording smooth and even transmission of vibration”, ninth species, and production of the edge being carried out by easier operations than that of prior art speaker edges (Ikeda883 Column 3 Lines 19 – 36) and enhanced strength at thin portions due to the higher density (Ikeda555 Column 3 Lines 24 – 26 and Column 6 Lines 53 – 55).

6. Claims 33, 62, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pocock, Ikeda883, and Ikeda555 in view of Saiki et al. (5,371,805), hereinafter Saiki.

Claim 33: Pocock, Ikeda883, and Ikeda555 disclose the loudspeaker according to claim 41, but *do not disclose* wherein said edge member includes convexities and concavities alternately arranged in a peripheral direction of said edge member. Saiki discloses a loudspeaker of similar configuration where the edge is divided into alternately arranged convexly rolled and concavely rolled pieces (Column 4 Lines 1 – 6). It would have been

obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock, Ikeda883, and Ikeda555 incorporating the feature disclosed by Saiki since “secondary harmonic distortion of sound pressure characteristics, which is caused by the differences between quantities of air displaced by the edge member in the forward and rearward vibrations of the diaphragm, can be greatly reduced” (Column 2 Lines 39 – 44).

Claims 62 and 56 are substantially similar in scope to claim 33 and therefore is rejected for the same reasons.

7. Claims 34, 39, 46, 61, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable Pocock, Ikeda883, and Ikeda555 in view of Koura et al. (PUB. NO. JP 05-122791 A), hereinafter Koura and Saeki et al. (JP 58221597 A), hereinafter Saeki.

Claims 34 and 39: Pocock, Ikeda883, and Ikeda555 disclose the loudspeaker according to claim 41, wherein the loudspeaker has a length and a width, with the length being greater than the width (Pocock discloses “Although described in the context of a circular cone and surround, the invention also is applicable to loudspeaker cones of other shapes eg. Elliptical,” Column 5 Lines 33 – 35) but *do not disclose* a variation in thickness of said edge member in a lengthwise direction of the loudspeaker is greater than a variation in thickness of said edge member in a widthwise direction of the loudspeaker, and a thickness of said edge member in a lengthwise direction of the

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loudspeaker is greater than a thickness of said edge member in a widthwise direction of the loudspeaker. Koura discloses a loudspeaker where the edge is divided into sections in the circumferential direction where the thickness of the material used for the edge changes or varies from section to section around the edge (Paragraphs 7 – 9 of Translation) therefore the thickness in one section would be greater than the thickness in another section. Also since the thickness of the edge is varied at different sections and the thickness may be greater in some sections than other sections along the edge, while at the same time the edge as disclosed by Pocock, Ikeda883, and Ikeda555 is thicker at its outer peripheral than inner peripheral, the ratio from thick to thin in some sections may be greater than the ratio from thick to thin in other sections due to the improvement disclosed by Koura. Saeki further discloses that in a particular speaker where the length is greater than the width, that due to the shape it is beneficial (for obtaining flat frequency characteristics) for edges of the speaker on the sides that are farthest away from the voice coil (i.e., the lengthwise direction) to have an increased stiffness which may be achieved by adding ribs of varying number and shape (changing thickness) (Translated Abstract and Constitution). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock, Ikeda883, and Ikeda555 incorporating the feature disclosed by Koura in an oval or rectangular shaped loudspeaker given the teachings of Saeki since Koura's edge sections of varying thickness may be spaced in any manner along the edge and would be well adapted to an oval or rectangular shape to allow for sufficient supporting of the diaphragm needed in the lengthwise direction provided by an edge

that is “thick” while allowing for sufficient mobility of the diaphragm in the widthwise direction where the edge is shorter by providing an edge that is “thin” (Koura, Paragraph 11 of Translation).

Claim 46: Pocock, Ikeda883, and Ikeda555 disclose the loudspeaker according to claim 41, wherein the loudspeaker has a length and a width, with the length being greater than the width (Pocock discloses “Although described in the context of a circular cone and surround, the invention also is applicable to loudspeaker cones of other shapes eg. Elliptical,” Column 5 Lines 33 – 35) but *do not disclose* a thickness of said edge member in a lengthwise direction of the loudspeaker is greater than a thickness of said edge member in a widthwise direction of the loudspeaker. Koura discloses a loudspeaker where the edge is divided into sections in the circumferential direction where the thickness of the material used for the edge changes or varies from section to section around the edge (Paragraphs 7 – 9 of Translation) therefore the thickness in one section would be greater than the thickness in another section. Saeki further discloses that in a particular speaker where the length is greater than the width, that due to the shape it is beneficial (for obtaining flat frequency characteristics) for edges of the speaker on the sides that are farthest away from the voice coil (i.e., the lengthwise direction) to have an increased stiffness which may be achieved by adding ribs of varying number and shape (changing thickness) (Translated Abstract and Constitution). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock, Ikeda883, and Ikeda555

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incorporating the feature disclosed by Koura in an oval or rectangular shaped loudspeaker given the teachings of Saeki since Koura's edge sections of varying thickness may be spaced in any manner along the edge and would be well adapted to an oval or rectangular shape to allow for sufficient supporting of the diaphragm needed in the lengthwise direction provided by an edge that is "thick" while allowing for sufficient mobility of the diaphragm in the widthwise direction where the edge is shorter by providing an edge that is "thin" (Koura, Paragraph 11 of Translation).

Claims 61 and 55 are substantially similar in scope to claim 46 and therefore are rejected for the same reasons.

8. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pocock, Ikeda883, Ikeda555, Koura, and Saeki in view of Sumiyama (PUB. NO. JP 06-125594 A), hereinafter Sumiyama.

Claim 35: Pocock, Ikeda883, Ikeda555, Koura, and Saeki disclose the loudspeaker according to claim 34, but *do not disclose* wherein a dimension of said inner peripheral portion of said edge member is smaller than a corresponding dimension of said outer peripheral portion said diaphragm. Sumiyama discloses a loudspeaker of similar configuration where the outer diameter of the diaphragm is larger than the clamp section of the edge (Drawing 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by

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Pocock, Ikeda, Koura, and Saeki incorporating the feature disclosed by Sumiyama since it allows for the diameter to be enlarged which increases low frequency reproduction while maintaining a small enclosure size (Paragraph 2 of Translation).

9. Claim 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pocock, Ikeda883, Ikeda555, Koura, and Saeki in view of Czerwinski (US 2003/0068064 A1), hereinafter Czerwinski.

Claim 36: Pocock, Ikeda883, Ikeda555, Koura, and Saeki disclose the loudspeaker according to claim 34, but *do not disclose* wherein said edge member is corrugated in a direction from said inner peripheral portion of said edge member to said outer peripheral portion of said edge member. Czerwinski discloses a loudspeaker of similar configuration where the cross section of the surround (edge) includes corrugations in the radial direction (Figure 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock, Ikeda883, Ikeda555, Koura, and Saeki incorporating the feature disclosed by Czerwinski since it allows for the diaphragm to be centered while providing a restoring force to keep the voice coil positioned within the magnetic gap (Paragraph 43).

Claim 38: Pocock, Ikeda883, Ikeda555, Koura, and Saeki disclose the loudspeaker according to claim 34, but *do not disclose* wherein said edge member includes ribs in a peripheral direction of said edge member. Czerwinski discloses a loudspeaker of

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similar configuration where the surround (edge) includes a relatively less-compressed area in the circumferential direction of the edge (Paragraph 41 and Figure 1 Item 30). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock, Ikeda883, Ikeda555, Koura, and Saeki incorporating the feature disclosed by Czerwinski since it allows for “increased flexibility in a direction which is orthogonal to the diaphragm without losing any rigidity in any direction within the plane of the diaphragm” (Paragraph 44).

10. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pocock, Ikeda883, Ikeda555, and Koura in view of Irby et al. (US 6,611,604 B1), hereinafter Irby.

Claim 37: Pocock, Ikeda883, Ikeda555, Koura, and Saeki disclose the loudspeaker according to claim 34, but *do not disclose* wherein said edge member includes ribs in a direction from said inner peripheral portion of said edge member to said outer peripheral portion of said edge member. Irby discloses a loudspeaker of similar configuration where the surround (edge) has radially position ribs (Item 34). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock, Ikeda883, Ikeda555, Koura, and Saeki incorporating the feature disclosed by Irby since the ribs allow for better performance in the form of less distortion due to an increased rigidity of the surround (Column 2 Lines 55 – 64).

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11. Claims 42, 63 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pocock, Ikeda883, and Ikeda555 in view of Sumiyama.

Claim 42: Pocock, Ikeda883, and Ikeda555 discloses the loudspeaker according to claim 41, but *do not disclose* wherein a dimension of said inner peripheral portion of said edge member is smaller than a corresponding dimension of said outer peripheral portion of said diaphragm. Sumiyama discloses a loudspeaker of similar configuration where the outer diameter of the diaphragm is larger than the clamp section of the edge (Drawing 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock, Ikeda883, and Ikeda555 incorporating the feature disclosed by Sumiyama since it allows for the diameter to be enlarged which increases low frequency reproduction while maintaining a small enclosure size (Paragraph 2 of Translation).

Claims 63 and 57 are substantially similar in scope to claim 35 and therefore is rejected for the same reasons.

12. Claims 43, 64, 58, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pocock, Ikeda883, and Ikeda555 in view of Czerwinski.

Claim 43: Pocock, Ikeda883, and Ikeda555 discloses the loudspeaker according to claim 41, but *do not disclose* wherein said edge member is corrugated in a direction

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from said inner peripheral portion of said edge member to said outer peripheral portion of said edge member. Czerwinski discloses a loudspeaker of similar configuration where the cross section of the surround (edge) includes corrugations in the radial direction (Figure 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock, Ikeda883, and Ikeda555 incorporating the feature disclosed by Czerwinski since it allows for the diaphragm to be centered while providing a restoring force to keep the voice coil positioned within the magnetic gap (Paragraph 43).

Claims 64 and 58 are substantially similar in scope to claim36 and therefore are rejected for the same reasons.

Claim 45: Pocock, Ikeda883, and Ikeda555 discloses the loudspeaker according to claim 41, but *do not disclose* wherein said edge member includes ribs in a peripheral direction of said edge member. Czerwinski discloses a loudspeaker of similar configuration where the surround (edge) includes a relatively less-compressed area in the circumferential direction of the edge (Paragraph 41 and Figure 1 Item 30). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock, Ikeda883, and Ikeda555 incorporating the feature disclosed by Czerwinski since it allows for “increased flexibility in a direction which is orthogonal to the diaphragm without losing any rigidity in any direction within the plane of the diaphragm” (Paragraph 44).

13. Claims 44, 65, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pocock, Ikeda883, and Ikeda555 in view of Irby.

Claim 44: Pocock, Ikeda883, and Ikeda555 discloses the loudspeaker according to claim 41, but *do not disclose* wherein said edge member includes ribs in a direction from said inner peripheral portion of said edge member to said outer peripheral portion of said edge member. Irby discloses a loudspeaker of similar configuration where the surround (edge) has radially position ribs (Item 34). It would have been obvious to one of ordinary skill in the art at the time of the invention to construct the loudspeaker edge disclosed by Pocock, Ikeda883, and Ikeda555 incorporating the feature disclosed by Irby since the ribs allow for better performance in the form of less distortion due to an increased rigidity of the surround (Column 2 Lines 55 – 64).

Claims 65 and 59 are substantially similar in scope to claim 37 and therefore is rejected for the same reasons.

Response to Arguments

14. Applicant's arguments with respect to claims 33 – 46 and 55 – 65 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Saunders whose telephone number is (571) 270-1063. The examiner can normally be reached on Monday - Thursday, 9:00 a.m. - 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Suhan Ni can be reached on (571) 272-7505. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./

Examiner, Art Unit 2615

/Suhan Ni/

Primary Examiner, Art Unit 2614